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IBM Technical Disclosure Bulletins

Term: L2 and (report$ with level with detail$)

Display: 10 **Documents in Display Format:** KWIC **Starting with Number** 1

Generate: ○ **Hit List** ◉ **Hit Count** ○ **Side by Side** ○ **Image**

Search | Clear | Help | Logout | Interrupt

Main Menu | Show S Numbers | Edit S Numbers | Preferences | Cases

Search History

DATE: Monday, May 12, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=ADJ			
L5	L2 and (report$ with level with detail$)	3	L5
L4	L3 and (report$ with level with detail$)	0	L4
L3	L1 and (network with status$ with (monitor$ or report$ or manag$)).ab.	87	L3
L2	L1 and (network with status$ with (monitor$ or report$ or manag$))	763	L2
L1	((709/$)!.CCLS.)	15791	L1

END OF SEARCH HISTORY

L5: Entry 2 of 3 File: USPT Aug 21, 2001

DOCUMENT-IDENTIFIER: US 6279033 B1
TITLE: System and method for asynchronous control of report generation using a network interface

Detailed Description Text (54):
Accordingly, agent module 28 enables a user access to the contents of data warehouse 12 to provide detailed analysis on an ad hoc basis. According to one embodiment of the invention, agent module 28 may comprise a software package known as DSS Agent.TM. offered by MicroStrategy. One of the advantages of DSS Agent.TM. includes its use of a ROLAP architecture on server system 14 and a RDBMS in data warehouse 12 to provide a more scaleable environment. Through DSS Agent.TM., a user can "drill down" which allows the user to dynamically change the level of detail in a report. Drilling down allows the user to drill to a lower level attribute so that the resulting report displays data with a greater level of detail. For example, one can drill down from year to month to week to day. DSS Agent.TM. also enables users to "drill up" to a higher level attribute. Drilling up summarizes the selected data to a higher level total. For example, one can drill from day to week to month to year. DSS Agent.TM. also enables a user to "drill within." Drilling within allows a user to go to a different hierarchy within the same dimension. Drilling within is often used to examine the characteristics of selected data. For example, drilling within enables a user to drill from item to color when looking at a particular retail item such as an automobile, clothing or the like. Drilling across allows the user to drill to an altogether different dimension or subject area. For example, one can drill across from a region to a month. Accordingly, through use of agent module 28, server system 14, and data warehouse 12, drilling is a powerful tool that is easily implemented using a ROLAP architecture which is not as easily accessible in MOLAP unless a user also implements the complicated structure of a HOLAP architecture.

Current US Original Classification (1):
709/217

Current US Cross Reference Classification (1):
709/219

CLAIMS:

10. The network-based system of claim 1 further comprising a status presentation means for transmitting status information to the user over the network related to a request for a report that the user has submitted.

L5: Entry 3 of 3 File: USPT Nov 9, 1999

DOCUMENT-IDENTIFIER: US 5982753 A
TITLE: Method of testing a switched local area network

Brief Summary Text (10):
Network managers need to have the ability to control network devices and monitor the traffic patterns within a given LAN using a central console which uses network management software to control multiple switches, routers, bridges, and other network devices. Built-in processing capability operating according to known standards is typically provided within each of these network devices, allowing them to be remotely programmed and queried to provide data back to the central console via SNMP (simple network management protocol) commands. SNMP is the current TCP/IP network management protocol defined according to RFC 1157. The built-in processing capability in the network devices operates in software as an SNMP agent which keeps control and status information that the network manager can access in the form of a MIB (management information base). A MIB specifies the data items a device must keep and the operations allowed on each data item.

Detailed Description Text (19):
In step 208 labeled "Select a Desired Report for Analysis", the user may select from a set of reports designed to aid in the test, diagnosis, and troubleshooting of the switched LAN 102. The reports may be selected in a variety of ways. In the preferred embodiment, reports having increasing levels of detail about a selected item, such as a report of the types of errors occurring on a selected port which is shown as report 46 in FIG. 4, may be called using softkeys or menu items available in another report, such a report listing the errors and utilization by port, shown as report 44 in FIG. 4.

Detailed Description Text (21):
In step 212 labeled "Another Report?", the user may continue selecting additional reports, which are typically in a hierarchy, either moving down to greater levels of detail, as noted above, or to different types of reports that may aid in the analysis and test of the switched LAN 102.

Current US Cross Reference Classification (2):
709/223

Set Name side by side	Query	Hit Count	Set Name result set
	DB=USPT; PLUR=YES; OP=ADJ		
L12	L2 and (bandwidth with transmit$ with report$)	1	L12
L11	L2 and (predetermin$ with bandwidth with report$)	0	L11
L10	L2 and (predetermin$ with bandwidth with transmit$ with report$)	0	L10
L9	L2 and (select$ with bandwidth with transmit$ with network with status with report$)	0	L9
L8	L6 and monito$	2	L8
L7	L6 and monito$	2	L7
L6	L5 and bandwidth$	2	L6
L5	L2 and (report$ with level with detail$)	3	L5
L4	L3 and (report$ with level with detail$)	0	L4
L3	L1 and (network with status$ with (monitor$ or report$ or manag$)).ab.	87	L3
L2	L1 and (network with status$ with (monitor$ or report$ or manag$))	763	L2
L1	((709/$)!.CCLS.)	15791	L1

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 1 of 1 returned.

☐ 1. Document ID: US 5218680 A

L12: Entry 1 of 1 File: USPT Jun 8, 1993

DOCUMENT-IDENTIFIER: US 5218680 A
TITLE: Data link controller with autonomous in tandem pipeline circuit elements relative to network channels for transferring multitasking data in cyclically recurrent time slots

Brief Summary Text (23):
One of the interrupt handling partitions (INT) monitors events within the device and at the interface between the device and the network (including hardware conditions and activities relative to link channels), collects relevant status details in local memory within the device and sets alerting indications in the other partition (SIO). Processing elements in the host system monitor the SIO for such indications and operate through the SIO to directly access local memory in the device to collect the stored status details. This eases the time criticality of reportage of time related events.

Detailed Description Text (731):
TX CNT is a cumulative count of the number of frames transmitted by the IDLC. It is inserted by the IDLC relative to each EOPIS word associated with reception of a frame (i.e. into R fields) for several reasons. Due to the transmit DMA chaining capability of the IDLC (see DMAC description below), it was decided to conserve IOP bus bandwidth and processing time by eliminating IDLC interrupts of the IOP to report transmittals of individual frames. Nevertheless, in order to provides integrity on the receive side of each full duplex channel link, it is necessary to furnish this transmitted frame count information to the IOP on a timely basis, inasmuch as received frames include a receive count sent by respective sources of such frames which represent the number of frames received by the source. Thus, the count of transmitted frames is needed by the IOP to distinguish erroneous receive count indications and maintain transmission integrity (e.g. by retransmitting frames not actually received).

Current US Original Classification (1):
709/215

Current US Cross Reference Classification (6):
709/228

Current US Cross Reference Classification (7):
709/230

Full | Title CLS.1 REF.1 SEQ.1 ATT.1

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Term	Documents
BANDWIDTH.USPT.	88355
BANDWIDTHS.USPT.	12527
TRANSMIT$	0
TRANSMIT.USPT.	245456
TRANSMITA.USPT.	1
TRANSMITAAION.USPT.	1
TRANSMITABILITY.USPT.	12
TRANSMITABLE.USPT.	24
TRANSMITABORT.USPT.	1
TRANSMITAFRAME.USPT.	1
TRANSMITAL.USPT.	26
(L2 AND (BANDWIDTH WITH TRANSMIT$ WITH REPORT$)).USPT.	1

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Secondary

Term: L2 and (predetermin$ with bandwidth$)

Kavner

Display: 10 **Documents in Display Format:** KWIC **Starting with Number** 1

1607

Generate: ○ Hit List ◉ Hit Count ○ Side by Side ○ Image

Search | Clear | Help | Logout | Interrupt

Main Menu | Show S Numbers | Edit S Numbers | Preferences | Cases

Search History

DATE: Monday, May 12, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
	DB=USPT; PLUR=YES; OP=ADJ		
L4	L2 and (predetermin$ with bandwidth$)	3	L4
L3	L2 and (predetermin$ with bandwidth with transmit$)	0	L3
L2	L1 and (network$ and status$ and monitor$).ab.	93	L2
L1	((709/$)!.CCLS.)	15791	L1

END OF SEARCH HISTORY

WEST

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Search Results - Record(s) 1 through 3 of 3 returned.

☐ 1. Document ID: US 6430607 B1

L4: Entry 1 of 3 File: USPT Aug 6, 2002

DOCUMENT-IDENTIFIER: US 6430607 B1
TITLE: System and method for performing remote requests with an on-line service network

Abstract Text (1):
A remote request system and method monitors and controls the execution of remote requests on an on-line services network. When a remotely located client sends a remote request to the on-line service network, the remote request system monitors the remote request while returning operating control back to the client while the remote request remains pending in the on-line service network. The remote request system also provides for the concurrent execution of multiple pending remote requests, provides status information about each remote request, provides for the cancellation of a pending remote request and optimizes the use of memory. In addition, the remote request system dynamically allocates memory when data blocks of unknown size are transmitted over the on-line services network.

Detailed Description Text (271):
The MCP layer 210 provides the transport protocols needed to support communications between the client processor 102 and the Gateways 124 and the servers 120. As illustrated in FIGS. 2 and 3, the MCP layer 210 exists in every client processor 102, in every Gateway 124, and in every server 120. With reference to FIG. 20, the MCP layer 210 comprises two layers, a message layer 2000 and a packet layer 2002. In accordance with one aspect of the invention, the message layer 2000 additionally multiplexes message streams associated with different service sessions. In accordance with another aspect of the invention, when two or more message streams are multiplexed, the message layer 2000 allocates the wide area network 106 bandwidth to the message streams based on predetermined (or user-specified) service priority levels.

Detailed Description Text (284):
This is accomplished by assigning segment lengths to different services based on entries stored within a service priority table 2220. The service priority table 2220 contains priority levels for each service (or service type) and is accessed by the MCP layer 210 whenever a new service is opened by the user. The service priority table 2220 may additionally include minimum throughput requirements for certain services. For example, for an embodiment of the CHAT service that permits voice communications, the table 2220 could indicate a minimum throughput requirement of 7 kbps (to ensure voice reproduction of a predetermined quality), and a request to open the service could be failed when this amount of bandwidth is not available.

Current US Original Classification (1):
709/217

Current US Cross Reference Classification (1):
709/216

Current US Cross Reference Classification (2):
709/219

☐ 2. Document ID: US 6289390 B1

L4: Entry 2 of 3 File: USPT Sep 11, 2001

DOCUMENT-IDENTIFIER: US 6289390 B1
TITLE: System and method for performing remote requests with an on-line service network

Abstract Text (1):
A remote request system and method monitors and controls the execution of remote requests on an on-line services network. When a remotely located client sends a remote request to the on-line service network, the remote request system monitors the remote request while returning operating control back to the client while the remote request remains pending in the on-line service network. The remote request system also provides for the concurrent execution of multiple pending remote requests, provides status information about each remote request, provides for the cancellation of a pending remote request and optimizes the use of memory. In addition, the remote request system dynamically allocates memory when data blocks of unknown size are transmitted over the on-line services network.

Detailed Description Text (271):
The MCP layer 210 provides the transport protocols needed to support communications between the client processor 102 and the Gateways 124 and the servers 120. As illustrated in FIGS. 2 and 3, the MCP layer 210 exists in every client processor 102, in every Gateway 124 and every server 120. With reference to FIG. 20, the MCP layer 210 comprises taco layers a message layer 2000 and a packet layer 2002. In accordance with one aspect of the invention, the message layer 2000 additionally multiplexes message streams associated with a different service sessions. In accordance with another aspect of the invention, when two or more message streams are multiplexed, the message layer 2000 allocates the wide area network 106 bandwidth to the message streams based on predetermined (or user-specified) service priority levels.

Detailed Description Text (284):
This is accomplished by assigning segment lengths to different services based on entries stored within a service priority table 2220. The service priority table 2220 contains priority levels for each service (or service typed and is accessed by the MCP layer 210 whenever a new service is opened by the user. The service priority table 2220 may additional include minimum throughput requirements for certain services. For example, for an embodiment of the CHAT service that permits voice communications, the table 22:20 could indicate a minimum throughput requirement of 7 kbps (to ensure voice reproduction of a predetermined quality), and request to open the service could be failed when this amount of bandwidth is not available.

Current US Original Classification (1):
709/310

Current US Cross Reference Classification (1):
709/200

Current US Cross Reference Classification (2):
709/313

Current US Cross Reference Classification (3):
709/330

☐ 3. Document ID: US 5956509 A

L4: Entry 3 of 3 File: USPT Sep 21, 1999

DOCUMENT-IDENTIFIER: US 5956509 A
**** See image for Certificate of Correction ****
TITLE: System and method for performing remote requests with an on-line service network

Abstract Text (1):
A remote request system and method monitors and controls the execution of remote requests on an on-line services network. When a remotely located client sends a remote request to the on-line service network, the remote request system monitors the remote request while returning operating control back to the client while the remote request remains pending in the on-line service network. The remote request system also provides for the concurrent execution of multiple pending remote requests, provides status information about each remote request, provides for the cancellation of a pending remote request and optimizes the use of memory. In addition, the remote request system dynamically allocates memory when data blocks of unknown size are transmitted over the on-line services network.

Detailed Description Text (268):
The MCP layer 210 provides the transport protocols needed to support communications between the client processor 102 and the Gateways 124 and the servers 120. As illustrated in FIGS. 2 and 3, the MCP layer 210 exists in every client processor 102, in every Gateway 124 and every server 120. With reference to FIG. 20, the MCP layer 210 comprises two layers a message layer 2000 and a packet layer 2002. In accordance with one aspect of the invention, the message layer 2000 additionally multiplexes message streams associated with a different service sessions. In accordance with another aspect of the invention, when two or more message streams are multiplexed, the message layer 2000 allocates the wide area network 106 bandwidth to the message streams based on predetermined (or user-specified) service priority levels.

Detailed Description Text (280):
As recognized by those skilled in the art, different types of on-line services tend to have different throughput and/or latency demands. For example, the on-line interactive VIDEO GAMES service typically requires a greater throughput for satisfactory operation than the MAIL service. Thus, with the multiplexing scheme of the present invention, it is desirable to implement a corresponding service priority scheme, whereby different services are allocated different amounts of the available wide area network bandwidth. This is accomplished by assigning segment lengths to different services based on entries stored within a service priority table 2220. The service priority table 2220 contains priority levels for each service (or service type) and is accessed by the MCP layer 210 whenever a new service is opened by the user. The service priority table 2220 may additional include minimum throughput requirements for certain services. For example, for an embodiment of the CHAT service that permits voice communications, the table 2220 could indicate a minimum throughput requirement of 7 kbps (to ensure voice reproduction of a predetermined quality), and request to open the service could be failed when this amount of bandwidth is not available.

Current US Original Classification (1):
709/330

Current US Cross Reference Classification (1):
709/203

Current US Cross Reference Classification (2):

L4: Entry 1 of 3 File: USPT Aug 6, 2002

DOCUMENT-IDENTIFIER: US 6430607 B1
TITLE: System and method for performing remote requests with an on-line service network

Abstract Text (1):
A remote request system and method monitors and controls the execution of remote requests on an on-line services network. When a remotely located client sends a remote request to the on-line service network, the remote request system monitors the remote request while returning operating control back to the client while the remote request remains pending in the on-line service network. The remote request system also provides for the concurrent execution of multiple pending remote requests, provides status information about each remote request, provides for the cancellation of a pending remote request and optimizes the use of memory. In addition, the remote request system dynamically allocates memory when data blocks of unknown size are transmitted over the on-line services network.

Detailed Description Text (271):
The MCP layer 210 provides the transport protocols needed to support communications between the client processor 102 and the Gateways 124 and the servers 120. As illustrated in FIGS. 2 and 3, the MCP layer 210 exists in every client processor 102, in every Gateway 124, and in every server 120. With reference to FIG. 20, the MCP layer 210 comprises two layers, a message layer 2000 and a packet layer 2002. In accordance with one aspect of the invention, the message layer 2000 additionally multiplexes message streams associated with different service sessions. In accordance with another aspect of the invention, when two or more message streams are multiplexed, the message layer 2000 allocates the wide area network 106 bandwidth to the message streams based on predetermined (or user-specified) service priority levels.

Detailed Description Text (284):
This is accomplished by assigning segment lengths to different services based on entries stored within a service priority table 2220. The service priority table 2220 contains priority levels for each service (or service type) and is accessed by the MCP layer 210 whenever a new service is opened by the user. The service priority table 2220 may additionally include minimum throughput requirements for certain services. For example, for an embodiment of the CHAT service that permits voice communications, the table 2220 could indicate a minimum throughput requirement of 7 kbps (to ensure voice reproduction of a predetermined quality), and a request to open the service could be failed when this amount of bandwidth is not available.

Current US Original Classification (1):
709/217

Current US Cross Reference Classification (1):
709/216

Current US Cross Reference Classification (2):
709/219

Set Name side by side	Query	Hit Count	Set Name result set
	DB=USPT; PLUR=YES; OP=ADJ		
L8	L6 and monito$	2	L8
L7	L6 and monito$	2	L7
L6	L5 and bandwidth$	2	L6
L5	L2 and (report$ with level with detail$)	3	L5
L4	L3 and (report$ with level with detail$)	0	L4
L3	L1 and (network with status$ with (monitor$ or report$ or manag$)).ab.	87	L3
L2	L1 and (network with status$ with (monitor$ or report$ or manag$))	763	L2
L1	((709/$)!.CCLS.)	15791	L1

applied ref 1753 Pendleton

END OF SEARCH HISTORY

L8: Entry 1 of 2 File: USPT Aug 21, 2001

DOCUMENT-IDENTIFIER: US 6279033 B1
TITLE: System and method for asynchronous control of report generation using a network interface

Brief Summary Text (15):
The hybrid OLAP ("HOLAP") solution is a mix of MOLAP and relational architectures that support inquiries against summary and transaction data in an integrated fashion. The HOLAP approach enables a user to perform multidimensional analysis on data in the MDDB. However, if the user reaches the bottom of the multidimensional hierarchy and requires more detailed data, the HOLAP engine generates an SQL statement to retrieve the detailed data from the source relational database management system ("RDBMS") and returns it to the end user. HOLAP implementations rely on simple SQL statements to pull large quantities of data into the mid-tier, multidimensional engine for processing. This constrains the range of inquiry and returns large, unrefined result sets that can overwhelm networks with limited bandwidth.

Drawing Description Text (3):
FIG. 2 is a schematic block diagram of a method for generating, monitoring, and canceling reports asynchronously in according with another embodiment of the present invention.

Detailed Description Text (36):
Network output module 22 may provide the functionality to determine whether a report request is the same or substantially the same as a previously requested report prior to forwarding a report to server system 14 for processing. Upon receipt of a report request, network output module 22 also controls network server 42 to present a new view to the user through user interface module 29 via network 36 while continuing to monitor progress of submitted reports identified for the particular user. This enables users to perform other tasks and thereby provides the asynchronous nature of the present invention. For example, the user may operate other views, pages, sites or any other action using user interface module 29, without having to wait for the report generation to be complete before being able to do so.

Detailed Description Text (39):
Network output module 22 may provide the functionality to determine whether a report request is the same or substantially the same as a previously requested report prior to forwarding a report to server system 14 for processing. Upon receipt of a report request, network output module 22 also controls network server 42 to present a new view to the user through user interface module 28 via network 36 while continuing to monitor progress of submitted reports identified for the particular user. This enables users to perform other tasks and thereby provides the asynchronous nature of the present invention. For example, the user may operate other views, pages, sites or any other action using user interface module 28, without having to wait for the report generation to be complete before being able to do so.

Detailed Description Text (43):
Through an administrator module within network output module 22, an administrator may also monitor performances of each report, filter reports by pending, error and completed requests, cancel or modify reports, and may resubmit a report if it creates an error. The administrator module may have restricted access to prevent users from canceling other user requests. The administrator module may also allow for setting global settings for the system. Further, the administrator module may also enable administrators to view history lists, status lists, and cancellation pages from the viewpoint of users on the system. This enables administrators to be

able to see what the user is seeing and therefore, troubleshoot or answer questions about the performance and operation of the system.

Detailed Description Text (50):
Administrator module 18 may comprise a module for facilitating the development, deployment and management of data warehouse applications supporting large volumes of users over various distribution mechanisms. Administrator module 18 may comprise an object manager and a warehouse monitor. The object manager allows objects to be shared across databases for easy migration from development to production. The warehouse monitor provides performance monitoring and management tools to support thousands of users across a distributive database environment. The warehouse monitor collects statistics for the purpose of identifying performance bottlenecks, warehouse tuning, and cost analysis. According to one embodiment of the invention, administrator module 18 may comprise a module known as DSS Administrator.TM. offered by MicroStrategy.

Detailed Description Text (54):
Accordingly, agent module 28 enables a user access to the contents of data warehouse 12 to provide detailed analysis on an ad hoc basis. According to one embodiment of the invention, agent module 28 may comprise a software package known as DSS Agent.TM. offered by MicroStrategy. One of the advantages of DSS Agent.TM. includes its use of a ROLAP architecture on server system 14 and a RDBMS in data warehouse 12 to provide a more scaleable environment. Through DSS Agent.TM., a user can "drill down" which allows the user to dynamically change the level of detail in a report. Drilling down allows the user to drill to a lower level attribute so that the resulting report displays data with a greater level of detail. For example, one can drill down from year to month to week to day. DSS Agent.TM. also enables users to "drill up" to a higher level attribute. Drilling up summarizes the selected data to a higher level total. For example, one can drill from day to week to month to year. DSS Agent.TM. also enables a user to "drill within." Drilling within allows a user to go to a different hierarchy within the same dimension. Drilling within is often used to examine the characteristics of selected data. For example, drilling within enables a user to drill from item to color when looking at a particular retail item such as an automobile, clothing or the like. Drilling across allows the user to drill to an altogether different dimension or subject area. For example, one can drill across from a region to a month. Accordingly, through use of agent module 28, server system 14, and data warehouse 12, drilling is a powerful tool that is easily implemented using a ROLAP architecture which is not as easily accessible in MOLAP unless a user also implements the complicated structure of a HOLAP architecture.

Detailed Description Text (59):
Another module that enables user access to the data warehouse 12 comprises a broadcast module 20. Broadcast module 20 may comprise an information broadcast server designed to deliver personalized messages to multiple recipients via user devices 40. User devices 40 may comprise electronic mail, facsimile, pager, mobile phone, telephone, and multiple other types of user information devices. Broadcast module 20, like agent module 28 and network output module 22, enables users to define queries and reports that are to be run against server system 14 and data warehouse 12. Broadcast module 20 may then send personalized information to users at predefined intervals or when criteria specified in their reports exceed predefined thresholds. Broadcast module 20 may continually monitor and run such reports to enable users to receive appropriate information as it becomes available. Broadcast module 20 may also personalize the report to ensure that users see only that portion of a report that is relative to that user and thereby frees analysts from acting as the information provider. Broadcast module 20 may also provide a wide range of content formatting options to enable users to receive information in a form that they can best understand. One such formatting may include formatting a request for a pager, facsimile, mobile phone, electronic mail, web or other output user device 40.

Current US Original Classification (1):
709/217

Current US Cross Reference Classification (1):
709/219

CLAIMS:

10. The network-based system of claim 1 further comprising a status presentation means for transmitting status information to the user over the network related to a request for a report that the user has submitted.

WEST

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L8: Entry 2 of 2 File: USPT Nov 9, 1999

DOCUMENT-IDENTIFIER: US 5982753 A
TITLE: Method of testing a switched local area network

Brief Summary Text (8):
The original Ethernet baseband model, in which all of the network devices reside on the same collision domain, typically linked together on a common coaxial cable or by using a shared hub in the 10BASE-T environment, is commonly referred to as a shared LAN. Because of increasing demands for available bandwidth, shared LANs are rapidly giving way to switched LANs in which a switched hub (switch) replaces or supplants the shared hub. Now, each collision domain may be separated into segments, with the switch selectively switching traffic between various segments of the LAN. The most common architecture of a switched LAN is to provide a switch between a number of segments, with each segment typically comprising separate work groups and with the majority of network traffic traveling between the server and each of the segments. With the exception of the segment that the server is on, each of the other segments benefit from increased bandwidth because they do not see the network traffic from the other segments. Because the server's segment typically becomes the performance bottleneck in the LAN, its maximum speed is increased, for example from 10 Mbps to 100 Mbps, to increase overall network performance.

Brief Summary Text (10):
Network managers need to have the ability to control network devices and monitor the traffic patterns within a given LAN using a central console which uses network management software to control multiple switches, routers, bridges, and other network devices. Built-in processing capability operating according to known standards is typically provided within each of these network devices, allowing them to be remotely programmed and queried to provide data back to the central console via SNMP (simple network management protocol) commands. SNMP is the current TCP/IP network management protocol defined according to RFC 1157. The built-in processing capability in the network devices operates in software as an SNMP agent which keeps control and status information that the network manager can access in the form of a MIB (management information base). A MIB specifies the data items a device must keep and the operations allowed on each data item.

Brief Summary Text (12):
The standard TCP/IP MIB is known as MIB-II, which is defined according to RFC 1213. Network devices may support other MIBs in addition to the standard MIB-II. RMON (remote monitoring) MIBs, defined according to RFC 1757, provide additional information not available from MIB-II, such as more detailed statistical and error information on any particular port of a switch. Transmission MIBs, including Ethernet according to RFC 1643, FDDI (fiber distribution data interface) according to RFC 1285 and 1512, and Token Ring according to RFC 1748, are tailored to provide information particular to the network media. Bridge MIBs, defined according to RFC 1493, contain a table of MAC addresses attached to various ports of the switch. Finally, a vendor may choose to adopt their own private MIBs, which, although adhering to agreed upon protocols defined according to the RFCs, contain proprietary commands and data items. The number of MIBs continues to expand as network devices gain improved capabilities and functionality.

Brief Summary Text (13):
While network management software provides for overall network control as well as detailed monitoring of any particular condition on the network using the available MIBs, the capability of such software to troubleshoot and find errors may be overwhelmed by the volume of information that may be collected. No capability is provided to selectively obtain information pertinent for troubleshooting and

analysis. The problem is exacerbated by the increasing use of switches which divide the network traffic into segments, thus making the use of such diagnostic tools as protocol analyzers impractical. Therefore, it would be desirable to provide a method for testing switched LANs by using the information gathered from the set of available MIBs in the switch to provide useful diagnostic information to the user.

Brief Summary Text (19):
It is may be desirable to have a report showing the MAC and IP addresses of the network devices attached to a particular switch port. The test instrument, upon connection to the LAN, first runs a segment discovery test by passive monitoring and by sending network requests to determine the MAC and IP addresses and device names of each of the network devices on the various segments within the broadcast domain. A database of these MAC and IP address pairs is then compiled.

Detailed Description Text (16):
In step 202 labeled "Conduct Segment Discovery", the test instrument 100 may detect the presence of a switch by sending a series of IP broadcast requests unique to switches to elicit a response or by passive monitoring to detect network traffic unique to switches including spanning tree and lattis span frames. The segment discovery test in addition may be used for detecting and identifying many other devices such as clients, servers, switches, and routers within the broadcast domain, typically using a combination of passive monitoring and a set of active broadcast messages to obtain responses from as many network devices as possible. Because broadcast messages are typically forwarded across segments by the switch 14, network devices within the same broadcast domain but on the another segment or port of the switch 14 may be discovered. A data base of MAC and IP addresses, along with other associated device information such as the device name, may be compiled in order to characterize the network devices on the switched LAN 102.

Detailed Description Text (19):
In step 208 labeled "Select a Desired Report for Analysis", the user may select from a set of reports designed to aid in the test, diagnosis, and troubleshooting of the switched LAN 102. The reports may be selected in a variety of ways. In the preferred embodiment, reports having increasing levels of detail about a selected item, such as a report of the types of errors occurring on a selected port which is shown as report 46 in FIG. 4, may be called using softkeys or menu items available in another report, such a report listing the errors and utilization by port, shown as report 44 in FIG. 4.

Detailed Description Text (21):
In step 212 labeled "Another Report?", the user may continue selecting additional reports, which are typically in a hierarchy, either moving down to greater levels of detail, as noted above, or to different types of reports that may aid in the analysis and test of the switched LAN 102.

Current US Cross Reference Classification (2):
709/223